

On a collection of hydroids (Cnidaria, Hydrozoa) from the Madeira archipelago

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Hydroids were collected from Madeira and Porto Santo Islands (eastern temperate Atlantic Ocean) by SCUBA diving over a depth range from 0 to 62 m, as well as by two trawls off the city of Funchal, at depths of 60 and 100 m. A preliminary list of 53 identified species from 33 genera and 17 families is given and comments are made on some of them. Eight of them could not be determined to species level because they either lacked gonophores or the medusa stage is necessary for identification. An undescribed species (genus *Sertularella*) will be described in a separate publication. Additional species have been sent to hydroid specialists, and their identifications are pending.

Key words: hydrozoa, Madeira, *Sertularella*, species list

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INTRODUCTION

The Hydrozoa of Madeira were reported on as early as the middle of the 19th century (Busk 1858-1861 Kirchenpauer 1876) and subsequently in many widely scattered publications, most notably by Svoboda & Cornelius (1991) and by Cornelius (1995) but there has not been a systematic effort to collect and identify the hydrozoan fauna of the Madeira archipelago. During the last 15 years, I have photographed hydroids in the field and collected specimens from Madeira and Porto Santo Island. The results of this study were partly already used in two books on the local marine invertebrate fauna (Wirtz 1995, Wirtz & Debelius 2003). The list given here is incomplete and preliminary because some of the material has been sent to specialists who will describe a new species and will deal with particularly difficult groups.

MATERIAL AND METHODS

Hydroid colonies were collected by SCUBA diving, at depths ranging from 0 to 62 m, and during two trawls off the city of Funchal, at depths of 60 and 100 m. Specimens were preserved in formol for further study and are now in the private collections of A. Svoboda (Bochum) and F. Ramil (Vigo).

The list of stations, collection depths, and time of collection is:

1. Caniço de Baixo, in front of hotel "Roca Mar", 2-20 m, 30/31-07-1992
2. Caniço de Baixo, 300 m W of hotel "Roca Mar", 3-4 m, 01-08-1992
3. Caniço de Baixo, in front of hotel "Roca Mar", 2-20 m, 03-08-1992
4. Caniço de Baixo, W of hotel "Gallo Mar", 4-20 m, 05-08-1992
5. Caniço de Baixo, in front of hotel "Roca Mar", 06-08-1992
6. Câmara de Lobos, from the keel of a lifted ship, 07-08-1992
7. Reis Magos, 1 – 16 m, 08-08-1992
8. Porto de la Cruz, 1 – 15 m, 09-08-1992

9. Caniço de Baixo, in front of hotel "Roca Mar", 27 m, 10-08-1992
10. Machico, 30 m, 11-08-1992
11. Caniço de Baixo, in front of hotel "Roca Mar", 10-20 m, 03-1993
12. Cais do Porto Novo, 20-35 m, 04-1993
13. Caniço de Baixo, in front of hotel "Oasis", 20 m, 24-04-1993
14. Cais do Aeroporto, 17 m, 24-04-1993
15. Cais do Porto Novo, 41 m, 28-04-1993
16. Caniço de Baixo, Atalaia Reef, 22-23 m, 01-05-1993
17. Caniço de Baixo, Atalaia Reef, 22 m, 05-05-1993
18. Cais do Porto Novo, 2-33 m, 06-05-1993
19. Cais do Porto Novo, 33 m, 08-05-1993
20. Porto Santo, 5-30 m, middle of May, 1993
21. Reis Magos, 10-12 m, 25-05-1993
22. Garajau, 6m, 15-06-1993
23. Caniço de Baixo, in front of hotel "Roca Mar", 22 m, 17-06-1993
24. Machico, 20-32 m, 17-06-1993
25. Reis Magos, 0-6 m, 02-07-1993
26. Machico, 10 m, 18-07-1993
27. Machico, 9-13 m, 15-08-1993
28. Garajau, 6 m, 15-08-1993
29. Cais do Porto Novo, spring tide low water level and 20 m, 18-08-1993
30. Caniço de Baixo, from the keel of a boat, 16-09-1993
31. Cais do Porto Novo, 53 m, 02-10-1993
32. Cais do Porto Novo, 62 m, 17-10-1993
33. Caniçal, 30 m, 06-11-1993
34. Lido do Funchal, 9-12 m, 04-12-1993
35. Reis Magos, 06-12-1993
36. Funchal, in front of Club Naval, 13 m, 12-1993
37. Ponta Gorda (W-End of Funchal, Madeira), 12 m, 10-12-1993
38. Caniçal, in front of the old harbour, 7 m, 18-12-1993
39. Reis Magos, 4.5 m, 29-12-1993
40. Cais do Aeroporto, 15-21 m, 08-01-1994
41. Reis Magos, 2 m, 09-01-1994
42. Ponto del Atalaia, 30 m, 15-01-1994
43. Reis Magos, 21 m, 15-01-1994
44. Roca Mar, 24 m, 24-01-1994
45. Reis Magos, 4-6 m, 01-02-1994
46. Maërl bottom, "Barrakuda Riff", 1.5 km SE of hotel "Roca Mar", 25 m, 02-02-1994
47. Funchal, in front of Club Naval, *Cymodocea* meadow, 15 m, 03-02-1994
48. Reis Magos, 4 m, 15-02-1994
49. Caniço de Baixo, in front of hotel "Roca Mar", 9 small tubes, 0-2 m, 18-02-1994
50. Ponta Atalaia, 25 m, 18-02-1994
51. Reis Magos, 2-4 m, 19-02-1994
52. Cais do Porto Novo, 26 m, 20-02-1994
53. Funchal, Harbour, from the bottom of a boat, 24-02-1994
54. Funchal, external harbour, 10 m, 17-03-1994
55. Caniçal, 8 m, 19-03-1994
56. Bay of Machico, sunken boat, 16 m, 23-04-1994
57. Seixal (Madeira north), 10 m, 22-05-1994
58. Porto da Cruz, 2-15 m, 28-05-1994
59. Seixal (Madeira north), 2-20 m, 29-05-1994
60. In front of Funchal, 60 m trawl, 23-01-1995
61. In front of Funchal, 100 m trawl, 23-01-1995
62. Seixal, north coast of Madeira, 2-20 m, 29-05-1995

RESULTS

Species list

CORYMORPHIDAE

Corymorpha spec.

BOUGAINVILLIIDAE

Bougainvillia muscus (Allman, 1863)

EUDENDRIIDAE

Eudendrium ramosum (Linnaeus, 1758)

HYDRACTINIIDAE

Hydractinia species 1

Hydractinia species 2

SPHAEROCORYNIDAE

Sphaerocoryne species

HALOCORDYLIDAE

Pennaria disticha Goldfuss, 1820

TUBULARIIDAE

Ectopleura crocea (Agassiz, 1862)

Ectopleura larynx (Ellis & Solander, 1786)

CLADOCORYNIDAE

Cladocoryne floccosa Rotch, 1871

ZANCLEIDAE

Zanclaea sessilis (Gosse, 1853)

CAMPANULINIDAE

Calycella spec.

Campomma cf. *hincksi* (Hartlaub, 1897)

Egmundella spec.

E. amirantensis Millard & Bouillon, 1973

LAODICEIDAE

Laodicea spec.

LAFOEIDAE

Filellum serpens (Hassall, 1848)

Filellum serratum (Clarke, 1879)

Hebellopsis scandens (Bale, 1888)

Scandia gigas (Pieper, 1884)

Scandia mutabilis (Ritchie, 1907)

HALECIIDAE

Halecium beanii (Johnston, 1838)

Halecium nanum Alder, 1859

Halecium pusillum (M.Sars, 1857)

Halecium tenellum Hincks, 1861

Halecium spec.

Hydranthea margarica (Hincks, 1862)

AGLAOPHENIIDAE

Aglaopenia lophocarpa Allman, 1877

Aglaopenia picardi Svoboda, 1979

Aglaopenia pluma (Linnaeus, 1758)

Aglaopenia tubulifera (Hincks, 1861)

Macrorhynchia philippina (Kirchenpauer, 1872)

Lytocarpia myriophyllum (Linnaeus, 1758)

HALOPTERIDIDAE

Antennella secundaria (Gmelin, 1791)

Halopteris diaphana (Heller, 1868)

Halopteris spec.

Monostaechas quadridens (McCrary, 1858)

KIRCHENPAUERIIDAE

Kirchenpaueria halecioides (Alder, 1859)

Kirchenpaueria pinnata (Linnaeus, 1758)

PLUMULARIIDAE

Monothea obliqua (Johnston, 1847)

Monothea pulchella (Bale, 1882)

Nemertesia ramosa (Lamarck, 1816)

Plumularia setacea (Linnaeus, 1758)

SERTULARIIDAE

Dynamena disticha (Bosc, 1802)

D. quadridentata (Ellis & Solander, 1786)

Salacia desmoides (Torrey, 1902)

Sertularella ellisii Deshayes & Edwards, 1836

Sertularella mediterranea Hartlaub, 1901

Sertularella ornata Broch, 1933

Sertularella new species

Sertularia distans Lamouroux, 1816

Sertularia marginata (Kirchenpauer, 1864)

CAMPANULARIIDAE

Clytia gracilis (M.Sars, 1850)

Clytia hemisphaerica (Linnaeus, 1758)

Clytia linearis (Thornely, 1899)

Clytia noliformis (McCrary, 1859)

Clytia paulensis (Vanhöffen, 1910)

Laomedea calceolifera (Hincks, 1871)

Obelia bidentata Clark, 1875

Obelia dichotoma (Linnaeus, 1758)

Orthopyxis crenata (Hartlaub, 1901)

Comments on some of the species

CORYMORPHIDAE

Corymorpha spec.

Material

Numerous specimens from sandy bottom in 20–24 m depth (among the garden eel *Heteroconger longissimus*) in front of Caniço de Baixo.

Description: The juvenile specimens were lacking gonophores and cannot be determined to species level.

HYDRACTINIIDAE

Hydractinia species 1

Material

Cais do Porto Novo, 20-35 m, 04-1993: one colony, no gonophores, creeping on hydrorhiza of *Ectopleura crocea*.

Description: Colony stolonal, polymorphic. Hydrorhiza reticulate, covered with perisarc and some chitinous spines, irregularly distributed. Spines smooth, with rounded distal end. Gastrozooids small, cylindrical, with globular hypostome and 8-10 filiform tentacles in a whorl. Dactylozooids filiform, of tentaculozooid type, with basis widened and distal end slightly dilated and filled with nematocysts. Gonozooids absent.

Table 1. *Hydractinia* species 1, measurements in μm .

| Gastrozooid | |
|------------------|----------|
| length | 700-1060 |
| maximal diameter | 70-110 |
| Dactylozooid | |
| length | 760-1300 |
| maximal diameter | 15-30 |
| Spines length | 180-220 |

Hydractinia species 2

Material

Cais do Porto Novo, 26 m, 20-02-1994: one colony on a gastropod shell inhabited by a hermit crab.

Description: This may be an undescribed species, or it may be referable to one of the species recently described from the Cape Verde Islands (Vervoort 2006). A photo of the colony is given in Wirtz (1995:24) and Wirtz & Debelius (2003:22) under the name *Podocoryne* species.

SPHAEROCORYNIDAE

Sphaerocoryne species

Material

Garajau, 6 m, 15-06-1993: one colony on sponge (*Petrosia ficiformis*), no gonophores; Garajau,

6 m, 15-08-1993: one colony on sponge (*Petrosia ficiformis*), no gonophores.

Description: As they are lacking gonophores, the specimens cannot be determined to species level. They could either be *Sphaerocoryne agassizii* (McCrary, 1859) or *S. bedoti* Pictet, 1893. Animals from Madeira are figured in Wirtz (1995:24) and Wirtz & Debelius (2003:19) under the name *S. bedoti*.

CAMPANULINIDAE
Calycella species

Material

Canico de Baixo, in front of hotel "Roca Mar", 2-20 m, 30/31-07-1992: one colony creeping on *Dynamena disticha*, no gonothecae; Canico de Baixo, in front of hotel "Roca Mar", 10-20 m, 03-1993: one colony on stone, together with *Dynamena disticha*, no gonothecae.

Description: As they are lacking gonothecae, the specimens cannot be determined to species level.

Egmundella species

Material

Canico de Baixo, in front of hotel "Roca Mar", 2-20 m, 03-08-1992: one colony on sponge, no gonotheca; Machico, 30 m, 11-08-1992: Several colonies on *Bougainvillia muscus*, no gonothecae.

Description: Colonies stolonial; hydrorhiza creeping, attached to substrate, giving rise to hydrothecal pedicels and nematophores. Hydrothecal pedicels are annulated throughout, each bearing a hydrotheca at distal end. Hydrotheca cylindrical, with smooth and straight walls, base slightly rounded; hydrothecal aperture with a pyramidal operculum composed of 10 thin, triangular plates, not distinctly demarcated from the hydrothecal rim. Nematotheca club-shaped, with small peduncle and dilated apical chamber containing a cluster of nematocysts; distal chamber sometimes with a perisarcular thickening basally.

Table 2. *Egmundella* species, measurements in μm .

| | |
|-------------------------------|---------|
| Pedicel | |
| length | 50-100 |
| diameter | 30-50 |
| Hydrotheca | |
| length up to opercular origin | 180-310 |
| length including operculum | 200-380 |
| diameter at rim | 80-130 |
| Nematotheca | |
| length | 40-60 |
| diameter | 20-25 |

LAODICEIDAE

Laodicea species

Material

Machico, 30 m, 11-08-1992: one colony on fishing line, no gonothecae.

Description: Species of this genus can be identified with certainty only from the medusa.

HALECIIDAE

Halecium species

Material

Porto Santo, 5-30 m, middle of May, 1993: one colony, with immature gonothecae.

Description: This could be either *Halecium labrosum* Alder, 1859 or *Halecium delicatulum* Coughtrey, 1876. New material with mature gonothecae needs to be studied.

HALOPTERIIDAE

Halopteris diaphana (Heller, 1868)

Material

Machico, 30 m, 11-08-1992: one colony on fishing line and Bryozoa, no gonothecae; Lido do Funchal, 9-12 m, 04-12-1993: two colonies on algae, no gonothecae; Bay of Machico, wreck, 16 m, 23-04-1994: one colony, no gonothecae.

Table 3. *Halopteris diaphana*, measurements in μm .

| | |
|---------------------------------|---------|
| Length thecate segment | 270-320 |
| Length athecate segment | 250-350 |
| Diameter at node | 30-60 |
| Hydrotheca | |
| length abcauline wall | 120-150 |
| length free part adcauline wall | 60-80 |
| diameter at rim | 140-160 |
| Lateral nematothecae | |
| length | 60-70 |
| diameter at rim | 30-40 |

Halopteris species

Material

Porto Santo, 5-30 m, middle of May, 1993: one colony on algae, with gonothecae; Seixal (Madeira north), 10 m, 22-05-1994: one colony on algae, no gonothecae; Porto da Cruz, 28-05-1994: one colony on ascidiacea, with gonothecae; Seixal (Madeira north), 29-05-1994: one colony on *Padina pavonica*, no gonothecae.

Description: New material with mature gonothecae needs to be sent to an expert for identification. Schuchert (1997) has recently revised the family Halopterididae.

SERTULARIIDAE

Sertularella new species

Material

Canico de Baixo, W of hotel "Gallo Mar", 4-20 m, 05-08-1992: One colony, with gonothecae, which had the hydrozoan *Obelia dichotoma* epibiotic.

Description: This appears to be an undescribed species. It will be dealt with in a separate publication by F. Ramil.

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REFERENCES

- Busk, G. 1858-1861. On some Madeiran Polyzoa collected by J. Yates Johnson Esq. *Quarterly Journal of Microscopical Science*. Oxford. 6(1858): 124-130; 7(1859): 65-69; 8(1860): 280-285; 9(1861): 77-80.
- Cornelius, P.F.S. 1995. North-West European thecate hydroids and their medusae. *Synopses of the British Fauna* (New Series) no. 50, Part 1 (347 pp.) and Part 2 (386 pp.).
- Kirchenpauer, G.H. 1876. Über die Hydrozoenfamilien Plumulariidae, einzelne Gruppen derselben und ihre Fruchtblätter. II. *Plumularia und Nemertesia*. *Abhandlungen aus dem Gebiet der Naturwissenschaften*. Hamburg. 6(2): 1-59.
- Schuchert, P. 1997. Review of the family Halopterididae (Hydrozoa, Cnidaria). *Zoologische Verhandlungen*. Leiden. 309: 1-162.
- Svoboda, A. & P.F.S. Cornelius 1991. The European and Mediterranean species of Aglaophenia (Cnidaria Hydrozoa). *Zoologische Verhandlungen*. Leiden. 274: 1-72.
- Vervoort, W. 2006. Leptolida (Cnidaria: Hydrozoa) collected during the CANCAP and Mauritania-II expeditions of the National Museum of Natural History, Leiden, the Netherlands (Anthoathecata, various families of Leptothecata and addenda). CANCAP-project. Contributions, no. 128. *Zoologische Mededelingen*. Leiden. 80: 181-318.
- Wirtz, P. 1995. *Unterwasserführer Madeira Kanaren Azoren Niedere Tiere - Underwater Guide Madeira Canary Islands Azores Invertebrates*. Verlag S. Nagelschmid, Stuttgart. 248 pp.
- Wirtz, P. & H. Debelius 2003. *Mediterranean and Atlantic invertebrate guide*. Conchbooks, Hackenheim. 305 pp.

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